

PATENT APPLICATION
Mo-5842
LeA 34,092

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION OF)
) GROUP NO.: 1796
WERNER OBRECHT ET AL.)
)
SERIAL NUMBER: 09/739,034) EXAMINER: R. SERGENT
)
FILED: DECEMBER 14, 2000)
)
TITLE: RUBBER MIXTURES BASED ON)
UNCROSSLINKED RUBBERS AND)
CROSSLINKED RUBBER PARTICLES)
AS WELL AS MULTIFUNCTIONAL)
ISOCYANATES)

APPEAL BRIEF

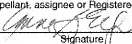
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This Appeal Brief is timely filed in response to the Final Office Action mailed December 21, 2007 within two (2) months from the filing date of the Notice of Appeal filed May 20, 2008. This Appeal Brief relates to the appeal of the rejections of Claims 8-10 and 23-32.

The headings used hereinafter and the subject matter set-forth under each heading is in accordance with 37 C.F.R. §41.37(c).

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July 21, 2008
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I. REAL PARTY IN INTEREST

Werner Obrecht and Martin Mezger are the only inventors of the invention described and claimed in the above-identified application. The inventors have assigned all rights, title, and interest in the invention of the application to Bayer Aktiengesellschaft (Bayer AG), as evidenced by assignment which was filed with the United States Patent and Trademark Office (USPTO) and recorded on December 14, 2000 at Reel 011392 Frame 0530. Bayer AG subsequently assigned all rights, title, and interest in the invention to Lanxess Deutschland GMBH as evidenced by assignment which was filed with the USPTO and recorded on December 1, 2006 at Reel 018584 Frame 0319.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals, judicial proceedings or interferences known to the Appellant which directly affect or will be directly affected by or have any bearing on the Board of Patent Appeals and Interferences' decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 8-10 and 23-32 are pending in this application. Claims 8-10 and 23-32 are rejected. Claims 1-7 and 11-22 were previously cancelled. The claims on Appeal are Claims 8-10 and 23-32.

Claims 8-10 and 23-32 stand rejected under 35 U.S.C. § 112, first paragraph, as the Office considers them as failing to comply with the written description requirement.

Claims 8-10 and 23-32 stand rejected under 35 U.S.C. §103(a), as the Office considers them to be obvious over U.S. Patent No. 6,127,488 or DE 19701487 to Obrecht et al. in view of U.S. Patent No. 5,232,531 to Dammann et al., JP 57-212239 or JP 05-017630.

IV. STATUS OF AMENDMENTS

No amendments have been filed subsequent to the rejection of Claims 8-10 and 23-32 in the Office Action mailed December 21, 2007.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The rejected claims are generally directed to a rubber vulcanate and a molded rubber body that include a rubber mixture comprising (A) uncrosslinked, double bond containing rubbers, (B) crosslinked rubber particles and (C) multifunctional isocyanates. The rubber mixture contains 1 to 150 parts by weight crosslinked rubber particles based on 100 parts by weight (phr) of the uncrosslinked, double bond containing rubbers, and 1 to 100 parts by weight multifunctional isocyanates based on 100 parts by weight (phr) of the uncrosslinked, double bond containing rubbers. The crosslinked rubber particles have particle diameters of from 5 to 1000 nm, swelling indices in toluene of from 1 to 15, and a gel content of from 80 % to 100 % by weight.

Independent Claim 8 is directed to a non-adhesive rubber vulcanate that includes the rubber mixture described above. Support for independent Claim 8 can be found throughout the specification and claims as originally filed. Specifically, support for the claimed rubber mixture can be found on page 2, lines 22-27 and the Abstract; support for the claimed crosslinked rubber particles can be found on page 5, line 25 to page 6, line 3; and support for a rubber vulcanate can be found, for example, on page 11, lines 8-9 and Example 4 on page 14, line 23 to page 17, line 10. Support for the term "non-adhesive" is implicit throughout the specification as originally filed. In particular, support for the claimed non-adhesive rubber vulcanates can be found on page 2, lines 9-18 and page 11, lines 10-12.

Independent Claim 9 is directed to a molded non-adhesive rubber body that includes a vulcanate rubber containing the rubber mixture described above. Support for independent Claim 9 can be found throughout the specification and claims as originally filed. Specifically, support for the claimed rubber mixture can be found on page 2, lines 22-27 and the Abstract; support for the claimed crosslinked rubber particles can be found on page 5, line

25 to page 6, line 3; and support for a rubber vulcanate can be found, for example, on page 11, lines 8-9 and Example 4 on page 14, line 23 to page 17, line 10. Support for the term "non-adhesive" is implicit throughout the specification as originally filed. In particular, support for the claimed non-adhesive rubber vulcanates can be found on page 2, lines 9-18 and page 11, lines 10-12.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

I. Whether the term “non-adhesive” in Claims 8-10 and 23-32 is sufficiently supported to comply with the written description requirement under 35 U.S.C. § 112, first paragraph.

II. Whether Claims 8-10 and 23-32 are patentable under 35 U.S.C. § 103(a) over U.S. Patent No. 6,127,488 or DE 19701487 to Obrecht et al. in view of U.S. Patent No. 5,232,531 to Dammann et al., JP 57-212239 or JP 05-017630.

VII. ARGUMENTS

The arguments set-forth in the Response and Amendment dated September 18, 2002 in response to the Non-Final Office Action mailed June 18, 2002; the arguments set-forth in the Response and Amendment dated April 9, 2003 in response to the Non-Final Office Action mailed December 4, 2002; the arguments set-forth in the Response and Amendment dated September 17, 2003 in response to the Final Office Action mailed June 17, 2003; the arguments set-forth in the Response and Amendment dated March 25, 2004 in response to the Non-Final Office Action mailed December 23, 2003; the arguments set-forth in the Response and Amendment dated October 8, 2004 in response to the Final Office Action mailed June 16, 2004; the arguments set-forth in the Response and Amendment dated April 29, 2005 in response to the Non-Final Office Action mailed November 29, 2004; the arguments set-forth in the Response and Amendment dated February 27, 2006 in response to the Final Office Action mailed July 27, 2005; the arguments set-forth in the Response and Amendment dated December 1, 2006 in response to the Non-Final Office Action mailed May 17, 2006; the arguments set-forth in the Response and Amendment dated May 21, 2007 in response to the Final Office Action mailed February 22, 2007; the arguments set-forth in the Response and Amendment dated October 17, 2007 in response to the Non-Final Office Action mailed June 20, 2007; and the arguments set-forth in the Pre-Appeal Conference Request dated May 20, 2008 in response to the Final Office Action mailed December 21, 2007 and Examiner Interview held on April 18, 2008 are hereby incorporated by reference in their entireties. Each ground of rejection presented for review is addressed hereinafter under the appropriate heading.

I. THE TERM “NON-ADHESIVE” IN CLAIMS 8-10 AND 23-32 IS SUPPORTED BY THE SPECIFICATION AS ORIGINALLY FILED

The Office has set-forth a rejection under 35 U.S.C. § 112, first paragraph for failing to comply with the written description requirement. The Office alleges that the specification as originally filed does not provide adequate support for a rubber vulcanate or rubber body that is “non-adhesive” as recited in Claims 8-10 and 23-32.

A. Relevant Case Law

35 U.S.C. § 112, first paragraph essentially requires that the specification includes the following: a written description of the invention, the manner and process of making and using the invention (the enablement requirement) and the best mode contemplated by the inventor of carrying out his invention. The objectives of the written description requirement is “to clearly convey the information that an applicant has invented the subject matter which is claimed;”¹ to put the public in possession of what the applicant claims as the invention;² “to satisfy the inventor’s obligation to disclose the technologic knowledge upon which the patent is based, and to demonstrate that the patentee was in possession of the invention that is claimed.”³ To satisfy the written description requirement, a patent specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention.⁴⁵

There is no *in haec verba* requirement. Newly added claim limitations must

¹ *In re Barker*, 559 F.2d 588, 592 n.4, 194 USPQ 470, 473 n.4 (CCPA 1977).

² *See Regents of the University of California v. Eli Lilly*, 119 F.3d 1559, 1566, 43 USPQ2d 1398, 1404 (Fed. Cir. 1997), *cert. denied*, 523 U.S. 1089 (1998).

³ *Capon v. Eshhar*, 418 F.3d 1349, 1357, 76 USPQ2d 1078, 1084 (Fed. Cir. 2005).

⁴ *See, e.g., Moba, B.V. v. Diamond Automation, Inc.*, 325 F.3d 1306, 1319, 66 USPQ2d 1429, 1438 (Fed. Cir. 2003) and *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d at 1563, 19 USPQ2d at 1116.

⁵ *See also*, MPEP 2163.

be supported in the specification through express, implicit, or inherent disclosure.⁶ Additionally, by disclosing in a patent application a device that inherently performs a function or has a property, operates according to a theory or has an advantage, a patent application necessarily discloses that function, theory or advantage, even though it says nothing explicit concerning it. The application may later be amended to recite the function, theory or advantage without introducing prohibited new matter.⁷⁸

B. Arguments

Appellant respectfully asserts that the specification as originally filed provides implicit support for the “non-adhesive” nature of the claimed rubber vulcanate. Moreover, the recitation of “non-adhesive” in the preamble of the pending claims merely describes an inherent property of the claimed rubber vulcanate. Therefore, although the term “non-adhesive” is not *in haec verba* expressed in the specification, the inherent non-adhesive nature of Appellant’s claimed rubber vulcanate is supported implicitly by the description of the claimed rubber vulcanate in the specification and claims as originally filed.

Specifically, the skilled artisan would reasonably conclude that the claimed rubber vulcanates are, in fact, non-adhesive in nature based on the specification as originally filed. For example, page 2, lines 9-18 describe the adhesive qualities of vulcanates containing diisocyanates described in the prior art. Conversely, Appellant’s objective is clearly expressed as preparing vulcanates having improved mechanical properties for use in molded articles such as tires or tire components. A lay person, let alone a skilled artisan would clearly understand that molded articles such as tires and tire components are

⁶ *In re Oda*, 443 F.2d 1200, 170 USPQ 268 (CCPA 1971).

⁷ *In re Reynolds*, 443 F.2d 384, 170 USPQ 94 (CCPA 1971); *In re Smythe*, 480 F. 2d 1376, 178 USPQ 279 (CCPA 1973).

⁸ *See also*, MPEP 2163.07(a).

necessarily non-adhesive. Thus, the rubber vulcanate used in the manufacture of such articles must be non-adhesive in nature. Page 11, lines 10-12 provide additional examples of molded bodies that can be produced using the claimed rubber vulcanate. Appellant further respectfully submits that each of recited molded bodies (*i.e.*, cable sheaths, hoses, drive belts, etc.) must be prepared from a non-adhesive rubber vulcanate to be commercially viable.

Therefore, one of ordinary skill in the art would reasonably conclude that the rubber vulcanate of independent Claims 8 and 9 is inherently non-adhesive based on the description of the rubber vulcanate in the specification as originally filed. Accordingly, the term “non-adhesive” is adequately supported in the specification as originally filed, and Claims 8-10 and 23-32 are in compliance with the written description requirement as set forth in 35 U.S.C. § 112, first paragraph. For at least these reasons, Appellant respectfully requests that the Office’s rejection under 35 U.S.C. § 112, first paragraph be overturned.

II. CLAIMS 8-10 AND 23-32 ARE NOT OBVIOUS UNDER 35 U.S.C. § 103(A) OVER U.S. PATENT NO. 6,127,488 OR DE 19701487 TO OBRECHT ET AL. IN VIEW OF U.S. PATENT NO. 5,232,531 TO DAMMANN ET AL., JP 57-212239 OR JP 05-017630.

A. Non-Obviousness

The Office has rejected Claims 8-10 and 23-32 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,127,488 or DE 19701487 to Obrecht et al. (hereinafter, “Obrecht”) in view of U.S. Patent No. 5,232,531 to Dammann et al. (hereinafter, “Dammann”), JP 57-212239 (hereinafter, “JP ‘239”) or JP 05-017630 (hereinafter, “JP ‘630”). The Office concedes that the primary reference, Obrecht, fails to teach or fairly suggest the use of polyisocyanates but alleges that it would have been obvious to combine the rubber mixture containing double bond containing rubber and crosslinked rubber particles as described by Obrecht with the polyisocyanates disclosed in Dammann, JP ‘239 and JP ‘630.

Appellant respectfully disagrees.

1. Relevant Case Law

To determine obviousness, a four part test, as set-forth in *Graham v. John Deere Co.*, is employed to examine the: (i) content and scope of the prior art; (ii) level of ordinary skill in the art; (iii) differences between the prior art and the claimed invention; and (iv) objective evidence of nonobviousness.⁹ To establish a *prima facie* case of obviousness, there must be some teaching, suggestion or motivation to combine the references, there must be some reasonable expectation of success based upon the teachings of the references, and the prior art references, when combined, must teach or suggest all of the claim limitations.¹⁰ Moreover, it is often necessary to take these factors into consideration in order to determine whether there was an apparent reason to combine known elements in the fashion claimed by the patent at issue and consider whether the combined elements yield predictable results.¹¹

In order to rely on a reference as a basis for rejection under 35 U.S.C. § 103(a), the reference must be analogous prior art by either being in the field of the inventor's endeavor or be reasonably pertinent to the particular problem with which the inventor was concerned.¹² Generally, a reference may be considered reasonably pertinent if, even though it is in a different field, it is one in which logically, it would have commended itself to an inventor's attention in considering the problem.¹³

⁹ *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966); *Iron Grip Barbell Co., Inc. v. USA Sports, Inc.*, 392 F.3d 1317, 1320 (Fed. Cir. 2004).

¹⁰ MPEP 2143.

¹¹ *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1740-41 (S. Ct. 2007).

¹² *Oetiker*, 977 F.2d at 1447; *In re Clay*, 966 F.2d 656, 659 (Fed. Cir. 1992).

¹³ *Clay*, 966 F.2d at 659 (Fed. Cir. 1992). In *In re Clay*, the Court held that the reference at issue could not be considered to be within the inventor's field of endeavor "merely because both relate to the petroleum industry." *Id.* The prior art reference taught the use of a gel in irregular volumes within underground, natural oil bearing formations to direct flow under extreme conditions, whereas the invention at issue taught

(continued...)

To establish a *prima facie* case for obviousness, the elements of the cited references must be combined in such a way so as to yield predictable results.¹⁴ “The mere fact that references can be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one of ordinary skill in the art.”¹⁵ The Supreme Court has reaffirmed that there must be some rationale for combining references and predictability is a necessary component for perfecting a *prima facie* case for obviousness: “A rationale to support a conclusion that a claim would have been obvious is that all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded nothing more than predictable results to one of ordinary skill in the art.”¹⁶

2. Arguments

The Office has asserted that the addition of polyisocyanates to the rubber mixture of Obrecht would predictably result in a composition having properties exhibited by Appellant’s claimed rubber vulcanate. Appellant respectfully disagrees and asserts that because the compositions containing polyisocyanates described in the cited prior art all have adhesive properties resulting from the addition of the polyisocyanates, there is no indication in any of the cited references that the a non-adhesive polyisocyanate containing composition

(continued...)

introduction of gel to a confined volume in a man-made storage tank at ambient temperature and atmospheric pressure. *Id.* Based upon the teachings, the Court found that the field of endeavor of the prior art reference was “extraction of crude petroleum” whereas the inventor’s field of endeavor was the “storage of refined liquid hydrocarbons.” *Id.*

¹⁴ MPEP 2143.

¹⁵ MPEP 2143.01 III, emphasis original.

¹⁶ *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, ___, 82 USPQ2d 1385, 1396 (2007), as cited in MPEP 2143.02.

can be produced by combining a non-adhesive rubber mixture such as that of Obrecht with polyisocyanates. Moreover, Appellant respectfully submits that the Office has failed to provide any evidence whatsoever that one of ordinary skill in the art would be lead to conclude that combining a rubber mixture of Obrecht with polyisocyanates would result in a non-adhesive composition based on Obrecht, Dammann, JP '239 and JP '630. In fact, Appellant respectfully asserts that in concluding that such a composition would predictably exhibit properties similar to those described in Appellant's specification, the Office has ignored the teachings of Dammann, JP '239 and JP '630 and the art recognized utility of polyisocyanates in rubber compositions (*i.e.*, providing adherence). One skilled in the art could not reasonably conclude that a rubber vulcanate free of adhesive qualities could be produced by combining the rubber mixture of Obrecht with the polyisocyanates of Dammann, JP '239 or JP '630. Moreover, the Office's allegation that the addition of polyisocyanates to the rubber mixture of Obrecht would result in a rubber vulcanate suitable for Appellant's recited purposes would require that the polyisocyanates of Dammann, JP '239 or JP '630 achieve qualities outside of their art recognized utility.

a. The Cited References Fail to Teach or Suggest a Non-Adhesive Rubber Vulcanate.

Appellant's rubber vulcanates are non-adhesive.¹⁷ The Office has failed to cite a single reference or a combination of references that would predictably result in a non-adhesive rubber vulcanate. Therefore, the Office has failed to identify a single reference or a combination of references that teach or fairly suggest all of the limitations of the pending claims.

Moreover, not only do the cited references fail to teach or fairly suggest all of

¹⁷ It is Appellant's position that the term "adhesive" as used in Dammann, JP '630 and JP '239 would fall within the common definition of an "adhesive" (*i.e.*, an adhesive substance such as a glue or cement (*see* Merriam Webster)).

the limitations of the pending claims, but the Office's rationale for combining the cited references is in clear contradiction with the "non-adhesive rubber vulcanate" recited in the pending claims. Specifically, the Office has explicitly and repeatedly stated that the secondary references (i.e., Dammann, JP '239 and JP '630) are provided for their disclosure of polyisocyanates which provide "rubber formulations that display excellent moldability and bonding resistant to heat and humidity."¹⁸ Appellant respectfully asserts that "*bonding resistant to heat and humidity*" is a clear reference to the adhesiveness or adhesive qualities of the materials of Dammann, JP '239 and JP '630. By asserting that the polyisocyanates of Dammann, JP '239 and JP '630 would impart "*bonding resistant to heat and humidity*" to the rubber mixture of Obrecht, the Office is asserting that the secondary references would provide the rubber mixture of Obrecht with a quality that is disclaimed in the pending claims and is clearly no a desired property in Appellant's claimed rubber vulcanate.

The Office's rationale for rejecting the pending claims is in clear contradiction with the properties recited in the pending claims, and for at least this reason, the Office has failed to establish that the combination of Obrecht in view of any of Dammann, JP '239 or JP '630 renders the pending claims obvious. Accordingly, Appellant respectfully requests that the Office's rejection under 35 U.S.C. § 103(a) be overturned.

b. The Skilled Artisan Would Have No Motivation to Combine Obrecht with Dammann, JP '239 or JP '630.

As described above, the Office has consistently stated that rubber compositions containing polyisocyanates exhibit "*bonding resistant to heat and humidity*." By this admission, the Office predicts that the addition of the polyisocyanates of Dammann, JP '239 or JP '630 to the rubber mixture of Obrecht would result in a rubber composition that

¹⁸ See, e.g., Office Action mailed December 21, 2007, page 3, 2nd full paragraph, lines 8-10; Office Action mailed June 20, 2007, pg. 3, 3rd paragraph.

is an adhesive and exhibits “bonding resistant to heat and humidity.” Both Obrecht and Appellant describe articles of manufacturer¹⁹ which require that the rubber vulcanate is non-adhesive and therefore, does not exhibit “bonding resistant to heat and humidity.” Therefore, the skilled artisan would not be motivated to modify Obrecht by combining Obrecht’s rubber mixture with the polyisocyanates of Damman, JP ‘239 or JP ‘630.²⁰ Moreover, the expected adhesiveness would render the resulting composition unsuitable for Obrecht’s and, consequently, Appellant’s claimed purposes.²¹

Appellant respectfully asserts that Dammann, JP ‘239 and JP ‘630 each describe polyisocyanate containing compositions as “adhesives” or that have adhesive properties. Specifically, Dammann clearly and consistently describes polyisocyanate containing compositions as “adhesives.”²² JP ‘630 describes mixing a powdered rubber with an adhesive which in the “CONSTITUTION” is described as containing polyisocyanate and hydroxyl-terminated liquid diene rubber, and although JP ‘239 is silent as to the properties of the described composition, the composition of JP ‘239 contains “liquid diene rubber having functional groups” and polyisocyanate which, based on JP ‘630, would be expected to result in an composition with adhesive properties. Additionally, JP ‘239 is directed to “bead filler” for a tire²³ which must adhere to the metal wire band or cable to make up the bead of the tire, so the skilled artisan would expect the “bead filler” to exhibit at least some adhesiveness. Therefore, one of ordinary skill in the art would logically predict that the rubber vulcanate

¹⁹ See, e.g., Obrecht col. 5, lns. 18-21 and Applicants’ Claim 10.

²⁰ See, MPEP 2143 and MPEP 2145.

²¹ See, MPEP 2143.01

²² See, e.g., Title, Abstract, col. 3, lns. 1-2, etc.

²³ See, JP ‘239 Title.

prepared by the combination of Obrecht and the polyisocyanates of Dammann, JP '239 would be an adhesive or at least exhibit some amount of adhesiveness.

The Office appears to understand this but has set-forth numerous arguments in attempts to reconcile the discrepancy between the predicted *"bonding resistant to heat and humidity"* and the non-adhesive properties exhibited by Appellant's claimed rubber vulcanate. For example, in the Final Office Action mailed December 21, 2007, the Office asserts that: (i) Appellant has failed to establish that the claimed vulcanates and adhesives are mutually exclusive, and (ii) that moldable compositions prior to cure have an adhesive property.

In response, Appellant respectfully asserts that a composition cannot simultaneously be adhesive and non-adhesive. Thus, the absence of adhesive properties exhibited by Appellant's rubber vulcanates as evidenced by Appellant's objective²⁴ and the molded articles prepared from Appellant's rubber vulcanate²⁵ clearly establishes that the claimed rubber vulcanates and the adhesives described in Dammann, JP '239 and JP '630 are mutually exclusive. Moreover, there is clearly no rationale to prepare the claimed molded articles (e.g., cable sheaths, shoe soles, tire components, etc.) from a rubber composition having the adhesiveness of a rubber adhesive for laminating roofing membranes as taught by Dammann or that "exhibits excellent adhesiveness" as indicated in JP '630. With regard to the adhesive properties prior to cure, the pending claims are directed to a "rubber vulcanate." Appellant respectfully asserts that a vulcanate has undergone vulcanization, and any tackiness exhibited by Appellant's composition prior to vulcanization is irrelevant and immaterial to the patentability of the pending claims.

²⁴ Specification, page 2, lines 9-18.

²⁵ Specification, page 11, lines 10-12.

The Office additionally contends that Dammann discloses curatives and the adhesives of Dammann “would not be non-adhesive to the same extent claimed by Applicants.”²⁶ The Office appears to assert that the presence of a curative in the composition of Dammann would result in a non-adhesive composition. In response, Appellant respectfully asserts that the disclosed compositions of Dammann are clearly and consistently described as “adhesives.” The skilled artisan would, therefore, expect *all* of the compositions described by Dammann to be adhesives regardless of optional ingredients such as a curative/vulcanizing agent included in the formulation. Moreover, Dammann, JP ‘239 and JP ‘630 fail to describe vulcanization and none of Dammann, JP ‘239 or JP ‘630 alone describe the rubber mixture of Appellant’s pending claims. Therefore, these references, necessarily, fail to describe the extent to which the disclosed adhesives are non-adhesive following vulcanization, and even assuming *arguendo* the cited references described vulcanization, a comparison of the extent of adhesion between the compositions of Dammann, JP ‘239 or JP ‘630 and Appellant’s claimed compositions is inappropriate because these compositions do not include the same components. There is no indication in any of the cited references that the addition of vulcanizing agents and/or vulcanization reduces or eliminates the adhesiveness of any of the adhesives of Dammann, JP ‘239 and JP ‘630.

The Office has failed to provide any fact based evidence that one of ordinary skill in the art could predict that the combination of the rubber mixture of Obrecht with the polyisocyanates of either Dammann, JP ‘239 or JP ‘630 would not result in an adhesive. Appellant respectfully submits that the inconsistency of the Office’s rationale, provides additional evidence that the “non-adhesive” properties exhibited by the Appellant’s claimed rubber vulcanate could not be predicted based on the cited references. The skilled artisan

²⁶ Office Action mailed page 4, 2nd full paragraph, lines 9-12.

would not be motivated to combine Obrecht with any of Dammann, JP '239 or JP '630 with the expectation of preparing a non-adhesive rubber vulcanate, and one skilled in the art would expect that the addition of the polyisocyanates of Dammann, JP '239 or JP '630 would render the rubber mixtures of Obrecht and Appellant's pending claims unsuitable for their claimed purposes.

Accordingly, the cited references have been improperly combined, and the Office has failed to perfect a *prima facie* case for obviousness based on this combination of references. For at least this reason, the cited references fail to render the pending claims obvious and the rejection of the pending claims under 35 U.S.C. § 103(a) should be overturned.

c. The Skilled Artisan Would Not Have a Reasonable Expectation of Success in Preparing a Non-Adhesive Rubber Vulcanate.

Every polyisocyanate containing composition described in the cited references is an adhesive or has adhesive properties. Therefore, the skilled artisan would not have a reasonable expectation of successfully preparing a non-adhesive rubber vulcanate by combining the rubber mixture of Obrecht with the polyisocyanates of Dammann, JP '239 or JP '630.²⁷

The only reasonable prediction one skilled in the art could make based on the cited references is that the addition of polyisocyanates to a rubber mixture such as that of Obrecht would result in an adhesive. Appellant can find no teaching that would lead the skilled artisan to believe otherwise, and the Office has failed to provide any fact based rationale that would lead one to any other conclusion. Accordingly, the Office has failed to establish that there is a reasonable expectation of successfully preparing Appellant's claimed

²⁷ MPEP 2143.02

non-adhesive rubber vulcanate by combining the cited references.

Accordingly, the Office has failed to perfect a *prima facie* case for obviousness based on this combination of references. For at least this reason, the cited references fail to render the pending claims obvious and the rejection of the pending claims under 35 U.S.C. § 103(a) should be overturned.

B. Rebuttal Arguments

Even assuming *arguendo* a *prima facie* case for obviousness can be made based on the cited references which Appellant respectfully asserts cannot, the non-adhesive properties of Appellant's claimed "non-adhesive rubber vulcanates" should be considered a surprising or unexpected result. Therefore, Appellant's identified properties properly rebut any such *prima facie* case for obviousness.²⁸

As described above, the Office has consistently stated that rubber compositions containing polyisocyanates exhibit "*bonding resistant to heat and humidity*" and the addition of polyisocyanates to rubber compositions would result in a composition that exhibits "*bonding resistant to heat and humidity*." Appellant respectfully submits that the molded articles identified in the specification as filed²⁹ provide sufficient evidence of the non-adhesiveness of Appellant's claimed rubber vulcanate.³⁰ Therefore, Appellant's "non-adhesive rubber vulcanates" do not exhibit adhesive properties, and based on the Office's own admission, the claimed rubber vulcanates exhibit a property (*i.e.*, non-adhesiveness) that is surprising or unexpected thereby rebutting any *prima facie* case for obviousness.

²⁸ MPEP 2145

²⁹ Specification, page 11, lines 10-12 and Claim 10.

³⁰ Rebuttal evidence and arguments can be presented in the specification. *In re Soni*, 54 F.3d 746, 750, 34 USPQ2d 1684, 1687 (Fed. Cir. 1995); Office personnel should consider all rebuttal arguments and evidence presented by applicants. See, e.g., *Soni*, 54 F.3d at 750, 34 USPQ2d at 1687 (error not to consider evidence presented in the specification). *C.f.*, *In re Alton*, 76 F.3d 1168, 37 USPQ2d 1578 (Fed. Cir. 1996).

Accordingly, for at least this reason, the rejection of the pending claims under 35 U.S.C. § 103(a) should be overturned.

Conclusion

A *prima facie* obviousness requires that the cited references teach or suggest every element of the claims, that there be motivation to combine the elements in the fashion claimed by the patent at issue and the combined elements yield predictable results, and that the skilled artisan would have a reasonable expectation of combining the required element to produce the claimed product. The Office has failed to show that the non-adhesive rubber vulcanate of the pending claims is obvious over the combination of Obrecht and Dammann, JP '239 or JP '630. Moreover, the Office's arguments regarding the predicted result of such a combination evidences the surprising or unexpected properties exhibited by Appellant's claimed rubber vulcanates. The preponderance of evidence clearly establishes the allowability of Claims 8-10 and 23-32. Reversal of all of the Examiner's rejections and allowance of Claims 8-10 and 23-32 is respectfully requested.

Respectfully submitted,

By

Jennifer R. Beng
Attorney for Appellant
Reg. No. 45,851

LANXESS Corporation
111 RIDC Park West Drive
Pittsburgh, Pennsylvania 15205-9741
(412) 809-2233
FACSIMILE PHONE NUMBER:
(412) 809-1054
Date: July 21, 2008

VIII. CLAIMS APPENDIX

8. A non-adhesive rubber vulcanate comprising rubber mixtures, which comprise uncrosslinked, double-bond containing rubbers (A), crosslinked rubber particles (B), multifunctional isocyanates (C), wherein the amount of component (B) in the mixture is from 1 to 150 parts by weight and the amount of multifunctional isocyanates (C) is from 1 to 100 parts by weight, in each case based on 100 parts by weight (phr) of the rubber component (A) and wherein said crosslinked rubber particles (B) have particle diameters of from 5 to 1000 nm and swelling indices in toluene of from 1 to 15 and wherein the gel content of the rubber particles (B) is from 80 to 100 wt.%.

9. A molded non-adhesive rubber body comprising a vulcanate rubber which comprise a rubber mixture comprising uncrosslinked, double-bond containing rubbers (A), crosslinked rubber particles (B), multifunctional isocyanates (C), wherein the amount of component (B) in the mixture is from 1 to 150 parts by weight and the amount of multifunctional isocyanates (C) is from 1 to 100 parts by weight, in each case based on 100 parts by weight (phr) of the rubber component (A) and wherein said crosslinked rubber particles (B) have particle diameters of from 5 to 1000 nm and swelling indices in toluene of from 1 to 15 and wherein the gel content of the rubber particles (B) is from 80 to 100 wt.%.

10. The molded non-adhesive rubber body according to Claim 9, wherein said molded rubber body is selected from the group consisting of cable sheaths, hoses, drive belts, conveyor belts, roller coverings, tire components, shoe soles, gaskets, damping elements and membranes.

23. The non-adhesive rubber vulcanate according to Claim 8, wherein said crosslinked rubber particles (B) are present in from 5 to 100 parts by weight and said multifunctional isocyanates (C) are present in from 3 to 50 parts by weight, in each case based on 100 parts by weight of the rubber component (A).

24. The non-adhesive rubber vulcanate according to Claim 8, wherein said multifunctional isocyanates (C) contain isocyanates having at least two isocyanate groups in the molecule.

25. The non-adhesive rubber vulcanate according to Claim 24, wherein said multifunctional isocyanates (C) are selected from the group consisting of hexamethylene diisocyanate, 1-isocyanato-3-(isocyanatomethyl)-3,5,5-trimethylcyclohexane, 2,4- and 2,6-diisocyanatotoluene as well as the corresponding technical isomeric mixture, diphenylmethane diisocyanates, diphenylmethane 4,4'-diisocyanate, diphenylmethane 2,4'-diisocyanate, diphenylmethane 2,2'-diisocyanate as well as the corresponding technical isomeric mixtures, naphthalene 1,5-diisocyanate and 4,4',4"-triisocyanatotriphenylmethane.

26. The non-adhesive rubber vulcanate according to Claim 8, wherein said uncrosslinked, double-bond-containing rubbers (A) are selected from the group consisting of natural rubber, styrene/butadiene rubber, polybutadiene rubber, nitrile rubber, butyl rubber, brominated isobutylene/isoprene copolymers having bromine contents of from 0.1 to 10 wt.% based on 100 wt.% of said brominated isobutylene/isoprene copolymer, chlorinated isobutylene/isoprene copolymers having chlorine contents of from 0.1 to 10 wt.% based on 100 wt.% of said chlorinated isobutylene/isoprene copolymer, hydrogenated or partially hydrogenated nitrile rubber, styrene/butadiene/acrylonitrile rubber, polychloroprene, epoxidized natural rubber or mixtures thereof, carboxylated nitrile rubbers and carboxylated styrene/butadiene copolymers.

27. The non-adhesive rubber vulcanate according to Claim 8, wherein said crosslinked rubber particles (B) include those which have been obtained by crosslinking of the following rubbers: polybutadiene, butadiene/acrylic acid C_{1-4} -alkyl ester copolymers, polyisoprene, styrene/butadiene copolymers having styrene contents of from 1 to 60 wt.%, based on 100 wt.% of the styrene/butadiene copolymer, carboxylated styrene/butadiene copolymers, fluorine rubber, acrylate rubber, polybutadiene/acrylonitrile copolymers having acrylonitrile contents of from 5 to 60 wt.% based on 100 wt.% of the polybutadiene/acrylonitrile copolymer, carboxylated nitrile rubbers, polychloroprene, isobutylene/isoprene copolymers having isoprene contents of from 0.5 to 10 wt.% based on 100 wt.% of the isobutylene/isoprene copolymers, brominated isobutylene/isoprene copolymers having bromine contents of from 0.1 to 10 wt.% based on 100 wt.% of the brominated isobutylene/isoprene copolymers, chlorinated isobutylene/isoprene copolymers having chlorine contents of from 0.1 to 10 wt.% based on 100 wt.% of the chlorinated

isobutylene/isoprene copolymers, partially and completely hydrogenated nitrile rubbers, ethylene/propylene/diene copolymers, ethylene/acrylate copolymers, ethylene/vinyl acetate copolymers, epichlorohydrin rubbers, silicone rubbers, polyester urethane polymers and polyether urethane polymers.

28. The non-adhesive rubber vulcanate according to Claim 27, wherein said styrene/butadiene copolymers have styrene contents of from 5 to 50 wt.% based on 100 wt.% of said styrene/butadiene copolymer.

29. The non-adhesive rubber vulcanate according to Claim 8, wherein the crosslinked rubber particles (B) comprise functional groups that are capable of reacting with isocyanates.

30. The non-adhesive rubber vulcanate according to Claim 29, wherein said crosslinked rubber particles (B) have been functionalized with hydroxyl, carboxyl, amino and/or amide groups.

31. The non-adhesive rubber vulcanate according to Claim 8, wherein the rubber mixtures additionally comprise vulcanization accelerators.

32. The non-adhesive rubber vulcanate according to Claim 31, wherein the vulcanization accelerators are mercaptosulfenamides.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.